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7055	7590	11/04/2003	EXAMINER	
GREENBLUM & BERNSTEIN, P.L.C.			LEUNG, JENNIFER A	
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RESTON, VA 20191			PAPER NUMBER	

1764

DATE MAILED: 11/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	09/964,386	ERGUN ET AL.	
	Examiner	Art Unit	
	Jennifer A. Leung	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 September 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☒ Certified copies of the priority documents have been received in Application No. 09/530,943.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                 | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____   |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)        | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ | 6) <input type="checkbox"/> Other:  |

## DETAILED ACTION

### *Priority*

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119 (a)-(d). The certified copy has been filed in parent Application No. 09/530,943.
2. On page 1, under CROSS-REFERENCE TO RELATED APPLICATIONS and before the phrase "which is a National Stage..." in line 3, the application priority should be corrected to read as follows:

-- The present application is a divisional application of U.S. Application No. 09/530,943, filed May 10, 2000, now U.S. Patent No. 6,440,057, --

### *Drawings and Specification*

3. The drawings and specification have not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware.

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 6-8, 11, 22 and 33-35 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 6, it is unclear as to the structural limitation applicants are attempting to recite by, "the reaction section comprises a dynamic emulsifier," as it is unclear as to the

Art Unit: 1764

structural elements that characterize the reaction section to comprise a “dynamic emulsifier”.

Regarding claim 7, it is unclear as to the structural limitation applicants are attempting to recite by, “the reaction section comprises a crack emulsifier,” as it is unclear as to the structural elements that characterize the reaction section to comprise a “crack emulsifier”.

Regarding claim 8, it is unclear as to the structural limitation applicants are attempting to recite by, “the reaction section comprises a turbulator,” as it is unclear as to the structural elements that characterize the reaction section to comprise a “turbulator”.

Regarding claim 11, it is unclear as to the structural limitation applicants are attempting to recite by, “the reaction section comprises a cavitation emulsifier,” as it is unclear as to the structural elements that characterize the reaction section to comprise a “cavitation emulsifier”.

Regarding claim 22, it is unclear as to where the structural limitation of, “the pore size is 5 - 200 nm,” is disclosed in the specification.

Regarding claim 33, the term “liquid” lacks proper positive antecedent basis.

Regarding claim 35, the terms “surplus methanol” lack proper positive antecedent basis. Furthermore, it is unclear as to the structural relationship of “a flash reactor” to the other elements of the apparatus.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 1764

5. Claims 1, 6, 8, 11, 25, 26, 30, 31 and 33-35 are rejected under 35 U.S.C. 102(b) as being anticipated by Bam et al. (US 5,424,467).

Regarding claim 1, Bam et al. (FIG. 1; column 4, lines 20 - column 5, line 11) discloses an apparatus comprising:

- at least one container for fats (oil storage tank **24**; column 5, lines 35-40);
- a tank for alkaline solution (catalyst, unlabeled; column 5, lines 47-52);
- a tank for alcohol (alcohol storage tank **20**; column 5, lines 41-46);
- a mixing vessel for compounding the alkaline solution and the alcohol from tank **20** and CATALYST (see Figure);
- a reaction section (reaction vessel **22**) connected to the at least one container **24** and the mixing vessel (unlabeled); and
- a separation unit (i.e., comprising dewatering column **34**) downstream from reaction section **22**.

Regarding claims 6, 8 and 11, Bam discloses reaction section **22** comprises an impeller **44** rotated by a motor **46** (FIG. 1). Inherently, reaction section **22** comprises a “dynamic emulsifier” or “turbulator”, since impeller **44** agitates the liquid “dynamically” with a rotating motion, thereby providing “turbulence”. Furthermore, reaction section **22** comprises a “cavitation emulsifier”, since bubbles formed in the liquid upon agitating impeller **44** will inherently “cavitate”, or be allowed to collapse, upon dispersion through the reaction vessel **22**.

Regarding claim 25, Bam et al. discloses the separation unit comprises a distillation unit comprising at least one evaporator and at least one condenser (i.e., dewatering column **34** comprising a vaporizing means and a condenser **68**; see Figure; column 4, lines 65-68).

Regarding claims 26 and 31, Bam et al. disclose an additional separation unit downstream from the separation unit **34**, wherein the additional separation unit comprises a distillation unit having at least one evaporation and at least one condenser (i.e., downstream vacuum distillation column **36** having a vaporizing means and a condenser **76**; see Figure; column 4, line 68 to column 5, line 11).

Regarding claim 30, Bam et al. further disclose a distillation unit upstream of the separation unit **34** (i.e., upstream extractive distillation vessel **30** having a vaporizing means and a condenser **60**; see Figure; column 4, lines 58-65).

Regarding claims 33 and 34, Bam et al. disclose pumps for introducing oil and alcohol from tanks **24** and **20**, respectively, to reaction section **22** (column 7, lines 10-13). The limitation of "high-pressure" provides no further structural limitation to the disclosed pumps, since pressure is not an element of the apparatus.

Regarding claim 35, Bam et al. further disclose a flash reactor for evaporation surplus methanol (i.e., extractive distillation column **30** for separating unreacted alcohol from glycerin and catalyst; column 4, lines 58-62; Figure 1).

Instant claims 1, 6, 8, 11, 25, 26, 30, 31 and 33-35 structurally read on the apparatus of Bam et al.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bam et al. (US 5,424,467) in view of Brockmann et al. (US 4,655,879).

Regarding claims 27-29, Bam et al. disclose the separation unit may comprise a series of evaporators (i.e., comprising vessels 30, 34 and 36 for vaporizing the liquid mixture; FIG. 1), but is silent as to the specifically recited evaporator types (i.e., down-flow, thin-layer or rotational flow). In any event, it would have been an obvious design choice for one of ordinary skill in the art at the time the invention was made to select one of the recited evaporator types for the evaporator(s) in the apparatus of Bam et al., on the basis of suitability for the intended use, since the substitution of known equivalent structures involves only ordinary skill in the art. *In re Fout* 213 USPQ 532 (CCPA 1982); *In re Susi* 169 USPQ 423 (CCPA 1971); *In re Siebentritt* 152 USPQ 618 (CCPA 1967); *In re Ruff* 118 USPQ 343 (CCPA 1958), and furthermore, the recited evaporator types are conventionally known in the art, as evidenced by Brockmann et al. In particular, Brockmann et al. (FIG. 1) teach a separation unit for purifying a glycerol-containing mixture, wherein the separation unit comprises a thin-layer evaporator (thin film evaporator 6), which may also be defined as a rotational flow evaporator, as evidenced by its mechanical stirring means (column 4, lines 55-59). The separation unit further comprises a down-flow evaporator (falling film evaporator 19; column 5, lines 44-57).

Art Unit: 1764

7. Claims 1-3, 5-11 and 31-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kokubo et al. (US 4,275,012).

Regarding claim 1, Kokubo et al. (FIG. 3; column 8, lines 16-63) disclose an apparatus comprising:

- at least one container for fats (tank ②; column 5, lines 26-33);
- a tank for catalyst solution (tank ③; column 5, lines 7-10);
- a tank for alcohol (tank ④/⑤; column 5, lines 3-6);
- a mixing vessel for compounding the catalyst solution and alcohol (i.e., inherent of the apparatus, as defined by the conduit which feeds the combined streams of alcohol from tanks ④/⑤ and catalyst solution from tank ③ to the top of reaction column ①);
- a reaction section (reaction column ①; FIG. 3, 4A-C) connected to the at least one container ② and the mixing vessel; and
- a separation unit downstream from the reaction section ① (i.e., as shown in FIG. 3, the SEPARATION TANK(s)).

Although Kokubo et al. discloses the tank for catalyst solution ③ comprises an acid solution, instead of the instantly recited alkaline solution, the disclosed tank is structurally capable of holding a different catalyst solution, and it would have been obvious for one of ordinary skill in the art at the time the invention was made to substitute an alkaline solution for the acidic solution in the apparatus of Kokubo et al., on the basis of suitability for the intended use, since the use of alkaline solutions for catalyzing esterification reactions is well known in the art. (see Kokubo et al.; column 1, line 56 to column 2, line 17).

Regarding claims 2, 3 and 5, Kokubo et al. (FIG. 3, 4A-C; column 4, lines 7-62) disclose



reaction section ① comprises a static mixer comprising a pipe (i.e., a column), and further comprising a baffle (i.e., baffle boards; column 4, lines 48-50), a propeller (i.e., stirrer 3 with blades 3') and a resistor (partition plates with openings 4).

Regarding claim 6, the reaction section ① Kokubo et al. inherently comprises a dynamic emulsifier, since the propeller (i.e., stirrer 3 with blades 3') rotationally agitates, and thus provides motion, to the liquid within the reaction section, the propeller being driven by motor 2.

Regarding claim 7, reaction section ① of Kokubo et al. (FIG. 3, 4A-C) inherently comprises a crack emulsifier, since openings 4 of partition plate 1 inherently define "cracks" for emulsifying the liquid during passage through the openings.

Regarding claim 8, the propeller (i.e., stirrer 3 with blades 3') of reaction section ① in the apparatus of Kokubo et al. inherently comprises a turbulator, since the propeller 3/3' agitates and thus provides turbulence to the liquid within the reactor section.

Regarding claim 9, reaction section ① of Kokubo et al. (FIG. 3, 4A-C) inherently comprises a mixed form of a crack emulsifier and a turbulator, since openings 4 of partition plate 1 inherently define "cracks" for emulsifying the liquid during its passage through the openings, and the propeller (i.e., stirrer 3 with blades 3') inherently defines a "turbulator" for agitating, or adding turbulence, to the liquid within the reactor section.

Regarding claim 10, Kokubo et al. disclose the mixed form of crack emulsifier and turbulator comprises two disks (partition plates 1; FIG. 3, 4A-C) capable of moving in relation to one another to introduce emulsion in the middle (i.e., through opening 4) of one of the disks.

Regarding claim 11, reaction section ① of Kokubo et al. inherently comprises a cavitation emulsifier, since the bubbles caused by the agitation of propeller 3/3' inherently

cavitate, or suddenly collapse, during passage of the liquid from one chamber to the next, said chambers defined by partition panels 1 (FIG. 3, 4A-C).

Regarding claim 31, Kokubo et al. disclose an additional separation unit downstream from the first separation unit (i.e., in FIG. 3, the second downstream SEPARATION TANK).

Regarding claim 32, Kokubo et al. (FIG. 3) discloses that the methanol layer separated from the methanol washing step(s) is sent to tank ④ for storage, and the methanol layer therein is maintained at a constant temperature so as to prevent the separation of oil due to temperature lowering. This methanol-oil mixture is then recycled to the reaction section ① via a connecting pipe from tank ④ (column 8, lines 39-49). Kokubo et al. is silent as to whether the connecting pipe may instead be located as to recycle the methanol-oil mixture to the reaction section ① via the at least one container of fats ②. In any event, it would have been an obvious design choice for one of ordinary skill in the art at the time the invention was made to select an appropriate location (such as the instantly claimed container of fats) for the connecting pipe in the apparatus of Kokubo et al. for the substantially identical purpose of recycling the methanol-oil mixture to the reaction section ① for further processing, because the shifting of location of parts involves on ordinary skill in the art. *In re Japikse*, 181 F.2d 1019, 1023, 86 USPQ 70, 73 (CCPA 1950).

Regarding claims 33 and 34, Kokubo et al. further disclose pump means for introducing liquid to the reaction section ① (column 8, lines 32-49; FIG. 3). The limitation of "high-pressure" provides no further structural limitation to the disclosed pumps, since pressure is not an element of the apparatus.

Regarding claim 35, Kokubo et al. further disclose a flash reactor for evaporation surplus methanol (i.e., separation tank ⑥; column 8, lines 52-56; FIG. 3).

Art Unit: 1764

8. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kokubo et al. (US 4,275,012) in view of Ake et al. (US 5,388,905).

Kokubo et al. is silent as to reaction section ① being filled with balls of various sizes. Ake et al. teach a static mixer (mixing/retention chamber 20; FIG. 1) in the form of a pipe filled with balls (sphere-shaped objects 50) of various sizes (column 4, lines 21-53). It would have been obvious for one of ordinary skill in the art at the time the invention was made to fill the reaction section ① in the apparatus of Kokubo et al. with balls of various sizes, because the balls provide a highly turbulent mixing of the liquid mixture, and furthermore, the variation in size enables the degree of turbulence to be varied along the flow profile, as taught by Ake et al.

9. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kokubo et al. (US 4,275,012) in view of Murry (US 3,614,069).

Kokubo et al. is silent as to reaction section ① comprising an ultrasound device. In any event, it would have been an obvious design choice for one of ordinary skill in the art at the time the invention was made to substitute a reaction section comprising an ultrasound device for the reaction section ① in the apparatus of Kokubo et al., because the substitution of known equivalent structures involves only ordinary skill in the art. *In re Fout* 213 USPQ 532 (CCPA 1982); *In re Susi* 169 USPQ 423 (CCPA 1971); *In re Siebentritt* 152 USPQ 618 (CCPA 1967); *In re Ruff* 118 USPQ 343 (CCPA 1958), and furthermore, the use of ultrasound devices for agitating or emulsifying liquid mixtures is well known in the art, as evidenced by Murry. In particular, Murry teaches an apparatus comprising an ultrasound device (i.e., ultrasound transducer 14 with ultrasonic generator 17; FIG. 1) for obtaining a state of cavitation, emulsification, and mixing wherein materials are subjected to a band of ultrasonic frequencies.

Art Unit: 1764

10. Claims 13 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kokubo et al. (US 4,275,012) in view of Pool et al. (US 2,543,055).

Regarding claims 13 and 24, Kokubo disclose oil and glycerol generated by reaction section ㊦ are separated downstream in a separation unit comprising two stages of methanol extraction or washing (column 8, lines 57-63; two stages of combination MIXING TANK/SEPARATION TANK; see FIG. 3). However, Kokubo is silent as to the separation unit comprising a filtration unit. In any event, it would have been obvious for one of ordinary skill in the art at the time the invention was made to substitute a filtration unit for the two stages of methanol extraction or washing in the apparatus of Kokubo et al., on the basis of suitability for the intended use, since the substitution of one known equivalent technique for another may be obvious even if the prior art does not expressly suggest the substitution. *Ex parte Novak* 16 USPQ 2d 2041 (BPAI 1989); *In re Mostovych* 144 USPQ 38 (CCPA 1964); *In re Leshin* 125 USPQ 416 (CCPA 1960); *Graver Tank and Manufacturing Co. v. Linde Air Products Co.* 85 USPQ 328 (USSC 1950). Furthermore, the separation of oil from glycerol according to filtration is well known in the art, as evidenced by Pool et al. In particular, Pool et al. teaches the crystallization and separation of fatty acids and their derivatives by filtration. Crystallization and subsequent filtration provides a solvent-less means for purifying the reaction mixture, thereby avoiding the necessity of heating the separated portions to dry and remove solvent, as taught by Pool et al. (column 3, lines 12-62). The filtration unit inherently comprises a multiphase filter, as it is used for the separation of a solid, crystallized phase from a liquid phase.

11. Claims 14-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kokubo et al. (US 4,275,012) in view of Pool et al. (US 2,543,055), as applied to claim 13 above, and

further in view of Muraldihara et al. (US 5,482,633).

Regarding claims 14, the collective teachings of Kokubo and Pool are silent as to the recited structural elements comprising the filtration unit. In any event, it would have been obvious for one of ordinary skill in the art at the time the invention was made to select an appropriate filter means (such as the membrane instantly claimed) for the filtration unit in the modified apparatus of Kokubo et al., because substitution of known equivalent structures involves only ordinary skill in the art. *In re Fout* 213 USPQ 532 (CCPA 1982); *In re Susi* 169 USPQ 423 (CCPA 1971); *In re Siebentritt* 152 USPQ 618 (CCPA 1967); *In re Ruff* 118 USPQ 343 (CCPA 1958). In particular, one example of an appropriate filter means is illustrated by Muraldihara et al., who teach a separation unit for separating glycerides from oils, comprising a surface filter as defined by a membrane filtration system having a membrane module **210** (FIG. 2; column 5, lines 62-16).

Regarding claim 15, 17-20 and 23, Muraldihara et al. teach membrane module **210** comprises a filter which may be made from a porous carrier and appropriate coatings, including the materials of aluminum, silicon and water, zirconia, silica, titania, carbon and glass, said filter acting as a ceramic membrane. Other appropriate materials include sintered metal oxides and hydroxides, including sintered alumina, sintered ceramics, and microporous glass. (column 3, lines 26-38; column 4, lines 7-20). Inherently, the membrane would exhibit at least one of lipophilic, hydrophilic and amphoteric properties, depending on the selected materials, and inherently, the membrane comprises a molecular sieve membrane or a molecular sieve filter, as evidenced by the filter structure having a molecular pore size.

Regarding claim 16, although Muraldihara et al. is silent as to the specific configuration

Art Unit: 1764

of the porous carrier, it would have been an obvious design choice for one of ordinary skill in the art at the time the invention was made to select an appropriate configuration (such as a pipe configuration) for the surface filter in the modified apparatus of Kokubo et al., on the basis of suitability for the intended use and absent showing any unexpected results thereof, since pipe shaped membranes are well known in the art, and furthermore, it has been held that changes in shape involves only ordinary skill in the art. *In re Dailey* 149 USPQ 47, 50 (CCPA 1966); *Glue Co. v Upton* 97 US 3, 24 (USSC 1878).

Regarding claims 21 and 22, Muraldihara et al. further teaches the membrane module **210** may comprise a filter having a pore size from about 0.1 to about 10 microns, and preferably from about 0.1 to about 0.5 microns (column 4, lines 7-20).

12. Claims 25-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kokubo et al. (US 4,275,012) in view of Brockmann et al. (US 4,655,879).

Regarding claims 25-30, Kokubo et al. discloses a separation unit downstream from the reaction section ① (i.e., the SEPARATION TANK(s); Fig. 3) but is silent as to whether the separation unit may comprise a distillation unit comprising at least one evaporator and at least one condenser, or whether a distillation unit comprising at least one evaporator and at least one condenser may be provided downstream or upstream from the separation unit. In any event, it would have been obvious for one of ordinary skill in the art at the time the invention was made to substitute or provide a distillation unit to the apparatus of Kokubo et al. since the use of distillation for the separation and purification of effluent streams is well known in the art, as evidenced by Brockmann et al. In particular, Brockmann et al. (FIG. 1; column 4, line 47 to column 6, line 26) teach a separation unit for the purification of glycerol containing streams from

Art Unit: 1764

a transesterification process, for example, wherein the unit comprises a distillation unit (i.e., packed column **11**) comprising at least one evaporator (i.e., thin film evaporator **6**, substantially a rotational flow evaporator, as evidenced by the mechanical stirring means. Also, falling film evaporator **19**, substantially a down-flow evaporator) and at least one condenser (i.e., first condenser **13**, second condenser **14**, reflux condenser **15**). Additionally, it has been held that the substitution of one known equivalent technique for another may be obvious even if the prior art does not expressly suggest the substitution. *Ex parte Novak* 16 USPQ 2d 2041 (BPAI 1989); *In re Mostovych* 144 USPQ 38 (CCPA 1964); *In re Leshin* 125 USPQ 416 (CCPA 1960); *Graver Tank and Manufacturing Co. v. Linde Air Products Co.* 85 USPQ 328 (USSC 1950).

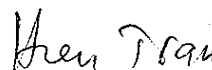
### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Leung whose telephone number is 703-305-4951. The examiner can normally be reached on 8:30 am - 5:30 pm M-F, every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on 703-308-6824. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Jennifer A. Leung  
October 28, 2003



HIEN TRAN  
PRIMARY EXAMINER